



IDENTIFICATION

Department	Position Title	
Environment and Climate Change	Forest Planning Officer	
Position Number	Community	Division/Region
23-3544	Fort Smith	Forest Management

PURPOSE OF THE POSITION

The Forest Planning Officer (Officer) is responsible for forest management planning and evaluating impacts, which affect the sustainable development of forest resources (accumulative development, disturbance regimes, and ecosystem health), all in accordance with applicable legislation, policies and national and international commitments made by the government. The Officer is responsible for managing gee-referenced data (acquisition, retrieval, and archiving) within the Forest Management Division (inventory, environment, and remote sensing) in accordance with approved standards and procedures. The incumbent is also responsible for preparing materials for public education and professional development.

SCOPE

Located in Forest Management Division Headquarters, Fort Smith, and reporting to the Manager, Fire Operations (Manager), the Forest Planning Officer, working as a team member within Fire Operations, prepares forest management plans and evaluates the impact of accumulative development, natural and human caused disturbances, and ecosystem health on the sustainability of the forest resource using analytic techniques within geographic information systems and statistical methodologies.

The Forest Management Division (FMD) provides the policy, planning, and regulatory framework for the stewardship, protection, and sustainable management of forest resources on 80 million hectares of land in the Northwest Territories (NWT). The forest fire management program is a key area of responsibility. Working proactively to reduce or eliminate the unwanted effects of wildland fires is one of the key components for the program.

The Fire Operations Section of the Division provides scientific fire management expertise and supports operational fire management. The Section conducts applied research for enhanced fire



science knowledge, leads the FireSmart program, and manages an information management framework for fire management of the NWT.

The forest management plans are prepared in accordance with the Division's legislative responsibilities and mandated commitment to sustainable resource management. The evaluations provide a scientific basis for issuance of licenses and permits and the basis for restricting certain activities for major projects such as oil and gas development, forest harvesting, and mining. Specifically, recommendations about the impact of accumulated effects of development and natural disturbances balanced against ecological health directly affect the rate development of natural resources in both time and space.

As the senior member of the interdisciplinary team within Fire Operations, the incumbent manages the Forest Management Division's geographic information systems (hardware and software) and gee-referenced databases (forest inventory, vegetation mapping, remote sensing, and forest environment). This activity ensures that the large capital investment in hardware, software, and data acquisition is managed cost-effectively, and that the data is acquired, processed, and archived in formats compatible with current operating systems.

The Officer prepares materials for public education and professional development for the Forest Management Division, the five Regions, and communities in support of regional self-reliance and community empowerment.

RESPONSIBILITIES

1. Evaluates impacts on the sustainability of the forest resource using analytic techniques within GIS and statistical methodologies to ensure that the development of natural resources complies with sustainable resource management policies and objectives.

- Conducts research into the utility of various digital products (maps, geo- referenced databases, and satellite imagery) to enhance the analysis of natural and human-caused disturbances for monitoring and reporting purposes.
- Analyzes using GIS technology and statistical methods the frequency and distribution of natural disturbances caused by forest fires, insect attacks, and land sliding on ice rich soils to describe and quantify the natural regime, which would be used as a baseline to measure the effects of human-caused disturbances.
- Evaluates, using GIS analytic tools and statistical methodology, the accumulative effects, which may be caused by increased resource development over a given forest land area, in support of the environmental impact assessment process.
- Evaluates, using GIS-based analytic tools and statistical methodology, the characteristics of forest ecosystems in terms of fragmentation, continuity, and connectiveness and other indicators important to the management of healthy ecosystems.



- Conducts critical reviews of research proposals and research results concerning landscape management issues within the forest areas of the Northwest Territories to ensure that the interests of the government are heard in scientific circles.
- Evaluates the scientific basis for the selection of protected areas and assesses protected areas in terms of natural disturbances, vegetation coverage, landforms, hydrologic regimes, and effects on resource development.

2. Acquires or develops products and technologies, which enhance the planning capability of the Forest Management Division, for the management of the forests of the Northwest Territories, in accordance with legislation, policy, and operating procedures.

- Acquires and analyzes satellite imagery and other remote sensing products to produce vegetation classification maps in digital format for planning forest operations, estimating forest inventory in remote areas, and assessing wildlife habitat.
- Analyzes and interprets on-ground vegetation surveys, aerial photography, and geo-referenced data from satellite imagery to differentiate vegetation classifications for fire management (fuel types), wildlife management (habitat types), and forest management (ecological types) for use by the Department for landscape planning, assessing resource development proposals, and protected area planning.
- Transforms vegetation classifications into forest fuel types for community protection, fire operations, and forest fuel management planning.
- Develops, with other forest fire management agencies, a fire growth model to assist operations personnel with fire response and suppression planning.
- Develops an integrated resource management database (forestry information management system) to facilitate such activities as integrated resource management planning and other operational-level activities conducted by the Forest Management Division.
- Implements and integrates Global Positioning Systems and GIS technologies in support of monitoring and mapping such things as cut blocks, roads, seismic lines, regeneration surveys, growth and yield plots, and forest fires.

3. Supervises the delivery of GIS related services and manages the associated geo-referenced databases in support of the Forest Management Division's activities in forest development, fire operations, forest science services, and five administrative regions to ensure that standards, procedures, and protocols are consistent with government policies and operating systems.

- Advises regional managers about the operational use of GIS and derived products to ensure that standards, procedures, and levels of training are maintained throughout the NWT.



- Supervises the processing and archiving of forest management data in various computer formats including geo-referenced, and graphics files for analysis, training, and preparation of scientific papers.
 - Investigates and implements where applicable hardware, software, and analytical models for data analysis to improve cost-effectiveness in processing and delivering GIS related data.
 - Researches a variety of methods and sources (i.e., GPS mapping, digitization, scanning, air photography and satellite imagery) to collect and process forest management data to meet the operational requirements of the Forest Management Division.
 - Administers service contracts for forest management data collection and/or analysis to ensure that deliverables meet the standards set by the Forest Management Division.
- 4. Prepares materials for public education and professional development for the Forest Management Division, the five Regions, and communities, in support of regional self-reliance, community empowerment, and national commitments.**
- Prepares lesson plans and other materials for technology transfer to the five regional offices and communities in support of building local capacity in managing natural resources.
 - Prepares materials about the forest resources for public education initiatives and for use in classrooms in accordance with the Division's continuing commitment to further awareness about forest management issues.
 - Assists communities with the inclusion of Traditional Knowledge about the forest environment within geographic information system formats where practical and applicable.

WORKING CONDITIONS

Physical Demands

Prolonged exposure sitting in a fixed position while studying computer screens for vegetation classifications and other fine graphic details.

Environmental Conditions

Exposure to the hazards of flying in light aircraft, sometimes under less-than-optimal conditions.

Exposure to high intensity, fast moving forest fires, both from the air and on the ground.

Sensory Demands

Eye strain and other physical discomforts associated with repetitive motion while using the mouse and keyboard.



Mental Demands

Stress from meeting deadlines and preparing accurate reports.

KNOWLEDGE, SKILLS, AND ABILITIES

- Knowledge of natural resource management gained through several years of experience.
- Knowledge of geographic information systems to analyze and display data (Arcinfo 7.0 or higher including Arcedit, Arcplot, and GRID; Arcview 3.1 or higher including Views, Tables, and Layouts; Arc Macro Language; Programming in Avenue) and knowledge of image analysis software, preferably ER Mapper 6.0.
- Research skills including the preparation or review of research proposals and statistical analysis of environmental data.
- Written and verbal communication skills.
- Ability to commit to actively upholding and consistently practicing personal diversity, inclusion, and cultural awareness, as well as safety and sensitivity approaches in the workplace.

Typically, the above qualifications would be attained by:

A bachelor's degree in Geographic Information Systems, or other forestry degree with a minor in Geographic Information Systems, combined with 3 years practical experience in Information Management/Information Technology experience, with at least 1 year working with Forest Management Decision Support Systems.

Equivalent combinations of education and experience will be considered.

ADDITIONAL REQUIREMENTS

Position Security (check one)

- ☒ No criminal records check required.
- ☐ Position of Trust – criminal records check required.
- ☐ Highly sensitive position – requires verification of identity and a criminal records check.

French language (check one if applicable)

- ☐ French required (must identify required level below)
Level required for this Designated Position is:
ORAL EXPRESSION AND COMPREHENSION
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
READING COMPREHENSION:
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
WRITING SKILLS:



Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
☐ French preferred

Indigenous language: Select language

☐ Required
☐ Preferred